REMARKS

Status of Claims

• Claims **1-14, 17-30** and **35-44** are currently pending.

Amendments to the Claims

Applicants have CANCELLED claims **1-44**, and added NEW claims **45-60**.

New claims **45-60**

New claims **45-60** are fully supported by the Specification, and no new matter has been added. Independent claims **45**, **55** and **57** are drawn to released MEMS devices covered with a protective coating, where the MEMS devices are disposed on a substrate, a wafer, or a die, respectively. The protective coating is selected from the group consisting of parylene, carbon, amorphous carbon, diamond-like carbon, perfluoropolyether, and perfluorodecanoic carboxylic acid; and the protective coating is sufficiently thick so as to immobilize any movable elements of the released MEMS device, and where the coating is insoluble in water and organic solvents. [Note, the addition of perfluorodecanoic carboxylic acid is supported in the Specification at p. 14, lines 10-11.]

New independent claims **45**, **55** and **57** presented in this Amendment are narrower than previously presented independent claims **1**, **25**, **28**, and **43**.

Hence, applicant's present arguments will be directed to new independent claims **45**, **55** and **57**, even though the Office's rejections were directed to the previously presented independent claims **1**, **25**, **28**, and **43** (and their dependent claims).

103 Rejections

Issue A

In the First Office Action dated 12/18/2003, the Office rejected claims **11-14, 17-30** and **35-44** under 35 USC 103(a) as being unpatentable over a variety of different combinations of references: (1) *Kao* in view of *Wu;* (2) *Degani* in view of *Wu*; (3) *Kaeriyama* in view of *Wu,* and (4) *Kao* in view of *Wu* and *Smith.*

In response, claims **1-14, 17-27** and **35-42** have been cancelled, and replaced with new independent claims **45, 55** and **57**. Applicants submit that the Office **will not be able** to make a *prima facie* case of obviousness with respect to new independent claims **45, 55** and **57.**

As recited in new independent claims **45, 55** and **57**, the protective coating directly contacts the released MEMS device; and is selected from the group consisting of parylene, carbon, amorphous carbon, diamond-like carbon, perfluoropolyether, and perfluorodecanoic carboxylic acid. None of these materials are soluble in water or organic solvents.

Kao teaches that the protective layer in direct contact with the MEMS structures **is water-soluble**. However, the list of protective coatings recited in Applicant's claims **45, 55** and **57 excludes the water-soluble** materials taught by *Kao*.

Wu et al. teaches that the protective layer in direct contact with the MEMS structures is a thick (e.g., 10 mil) layer of a **silicone elastomer**. Although *Wu* teaches the use of parylene as a protective coating, Wu teaches that parylene is applied as a **second** layer on top of the silicon elastomer first layer (because the parylene overcoat protects the silicone first layer from jet fuel and oil). However, the list of protective coatings in direct contact with the MEMS structures that are recited in Applicant's claims **45, 55** and **57 excludes the silicone elastomers** taught by *Wu et al.*

Degani et al. teaches a protective coating in direct contact with a multichip module that is soluble in **polar organic solvents.** However, the list of protective coatings recited in Applicant's claims **45, 55** and **57 excludes materials that are soluble in organic solvents, including the polar organic solvents** taught by *Degani et al.*

Kaeriyama et al. teaches using photoresist as a protective coating in direct contact with MEMS devices. Photoresist is soluble in organic solvents, such as acetone. However, the list of protective coatings recited in Applicant's claims **45, 55** and **57 excludes materials that are soluble in organic solvents, including the photoresist** coating taught by *Kaeriyama et al.*

Smith et al. teaches using hexamethyldisilazane as an adhesion-inhibiting, lubricating material in direct contact with released MEMS structures. However, the list of protective coatings recited in Applicant's claims **45, 55** and **57 excludes** the material, **hexamethyldisilazane,** taught by Smith et al. Additionally, *Smith* **teaches away from** using the protective coatings listed above, because claims **45, 55** and **57** require that the protective coating **immobilize** any movable elements of the released MEMS device, whereas *Smith* requires that the coating **lubricates** the MEMS elements (i.e., the opposite of immobilizing).

In summary, none of the references cited by the Office teach or suggest a protective coating that is selected from the group consisting of parylene, carbon, amorphous carbon, diamond-like carbon, perfluoropolyether, and perfluorodecanoic carboxylic acid, where the coating directly contacts a released MEMS device; wherein the protective coating is sufficiently thick so as to immobilize any movable elements of the released MEMS device; and wherein the protective coating is insoluble in water and organic solvents.

Since **not all of the elements are present** in the cited references, either alone or in combination, a *prima facie* case of obviousness could not be made. Therefore, independent claims **45, 55** and **57** should be allowed.

Issue B

The Office asserts that *Kao* discloses the claimed invention, except for the specific materials of the protective coating. However, *Kao* teaches that the first layer directly contacting the MEMS devices must be **water-soluble** (see *Kao*, Col. 2, lines 50-52), since this advantageously allows the protective coating to be removed using environmentally-friendly **water** to dissolve the first layer. That is the **function** of *Kao's* first layer, and is a critical feature enabling *Kao's* invention.

While it may be true that the use of conventional materials to perform their known functions in a conventional process may be obvious, in this specific case the class of materials taught by *Kao* (water-soluble first layer) **cannot logically include** the class of materials recited in claims **45**, **55** and **57**, which are limited to being **insoluble in water**. These two classes are **mutually exclusive** of each other.

In other words, since the class of materials recited in Applicant's claims **45**, **55** and **57** cannot be dissolved by water, they **cannot perform the same critical function** as *Kao's* water-soluble first layer (whose critical function is to be dissolved when exposed to water). Hence, the materials claimed in claims **45**, **55** and **57** are not obvious in view of *Kao et al.*, and should be allowed.

Dependent Claims

Dependent claims **46-54** depend from claim **45**. Dependent claim **56** depends from claim **55**. Dependent claims **58-60** depend from claim **57**. As presented above, claims **45**, **55** and **57** are in condition for allowance. All claims depending from an allowed claim are allowable. Therefore, dependent claims **46-54**, **56**, and **58-60** are now in condition for allowance.

CONCLUSION

Applicants have responded to each and every objection and rejection, and urge that new claims **45-60** as presented are now in condition for allowance. Applicants request expeditious processing to issuance.

In this Amendment, a total of thirty-eight claims were cancelled (including canceling four independent claims), and a total of sixteen new claims were added (including adding three independent claims). Therefore, no additional fees should be charged for changes to the claims.

Respectfully submitted,

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